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Blue Jay Sample Experimental Design Research Investigation

Experimental Design

Designing a Strong Research Investigation

It starts with a question …

Corvid Feeder Behavior

Often times a research investigation starts with an "I Wonder" Question. Then the Research Question follows. Finally, the Methodology to investigate the question is determined and the research is carried out. Below is a series of steps taken to get to a good Research Question. A Research Question is testable and measurable.

For purposes of the example, see the Key below:

- IWQ = I Wonder Question
- IWH = I Wonder Hypothesis
- RQ = Research Question
- RH = Research Hypothesis
- RD = Research Design
- SP = Single-peanut
- DP = Double-peanut

Example:

IWQ: I Wonder why Blue jays (and other corvids like crows) pick up and drop different unshelled peanuts before selecting one and cropping or flying
away with it?

IWH: I think the Blue jays (or other corvid) are selecting the peanuts based on weight. They are dropping the lighter ones (single-peanuts inside) and
selecting the heavier ones (two-peanuts inside).

RQ: What is the percentage of single peanuts selected vs. double peanuts in a tray feeder offered to Blue jays (or other corvids)?

RH: The percentage of double-peanut peanuts selected will be higher than the single-peanut peanuts selected because the birds will select the
peanuts that will provide them more food.

RD:

- **Materials:** tray feeder(s); single-peanut peanuts; double-peanut peanuts; game camera to record feeder visits.
- **Methodology:**
  - Step 1: Deploy and set up tray feeder(s)
  - Step 2: Count out the same number of single-peanut peanuts and double-peanut peanuts. Example: N = 50 total (25-SP; 25-DP).
  - Step 3: Mix peanuts thoroughly in the tray feeder, so the Blue jays will have to pick through them to select what they want.

- Step 4: Deploy the game camera near the feeder; settings should be on video, motion activation.
- Step 5: Run experiment recording several visits, to determine which peanuts are being selected the most.
- Step 6: Analyze data.
- Step 7: Draw conclusion about which peanuts were selected the most.
- Alternative Set-up:
- Instead of mixing the two sizes of peanuts, put them in two distinct trays, side-by-side; set up game camera to record video; analyze results; draw conclusion.